

WHAT IS CLAIMED IS:

1           1.     A hearing device adapted for extended wear entirely within an ear canal,  
2 comprising:

3                 a core assembly including a lateral section having a microphone and a battery  
4 assembly, and a receiver section having a receiver; and

5                 a sealing retainer concentrically positioned over said receiver section for conforming  
6 to the walls substantially at the bony region of the ear canal, for seating the hearing device in  
7 the ear canal and for acoustical sealing against feedback within the ear canal;

8                 said lateral section being of generally oval cross-sectional perimeter and of generally  
9 cylindrical and elongated shape along its longitudinal axis, said lateral section being adapted  
10 for at least partial lateral suspension in the ear canal without occlusion thereof when said  
11 hearing device is inserted within the ear canal.

1           2.     The hearing device of claim 1, wherein said battery assembly is rechargeable.

1           3.     The hearing device of claim 1, wherein said lateral section is medially tapered.

1           4.     The hearing device of claim 1, wherein said lateral section is dimensioned for  
2 said non-occlusion with minimal or no contact with the walls of the ear canal when said  
3 hearing device is inserted therein, for minimal interference with hair and debris present within  
4 the ear canal.

1           5.     The hearing device of claim 1, wherein said lateral section further comprises  
2 a stabilizer for positioning between the outer surface of said lateral section and the walls of the  
3 ear canal to center and stabilize said lateral section within the ear canal when said device is  
4 inserted therein.

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1           6.     The hearing device of claim 1, wherein said core assembly comprises a thin  
2 moisture-proof encapsulation with its outer surface at least partially exposed directly to the  
3 environment of the ear canal when said device is inserted therein.

1           7.     The hearing device of claim 1, wherein said receiver section is flexibly  
2 connected to said lateral section to facilitate insertion of said core assembly within the ear  
3 canal, and to allow movement of said lateral section in response to canal movements or to  
4 accumulation of debris within the ear canal.

1           8.     The hearing device of claim 1, further comprising at least one acoustically-  
2 transparent moisture-proof debris guard for protecting a sound port of at least one of said  
3 microphone and said receiver.

1           9.     The hearing device of claim 1, further comprising an air vent for pressure  
2 equalization.

1        10.    The hearing device of claim 1, wherein said microphone includes an amplifier  
2        integral therewith for processing acoustic signal.

1        11.    The hearing device of claim 1, further including programming means for  
2        selectively adjusting electroacoustic parameters of said hearing device.

1        12.    The hearing device of claim 1, further including remote control means for  
2        controlling at least one control parameter of said hearing device.

1        13.    The hearing device of claim 12, wherein said remote control means includes  
2        means operative using at least one of sound, ultrasound, magnetic, electromagnetic, radio  
3        frequency and infrared signals.

1        14.    The hearing device of claim 1, wherein said sealing retainer has an oval cross-  
2        sectional perimeter.

1        / 15.    The hearing device of claim 1, wherein said sealing retainer is composed of  
2        compressible material.

1        16.    The hearing device of claim 15, wherein said compressible material responds  
2        to compression by undergoing time-delayed expansion to assume a sealing fit within the ear

3 canal when the hearing device is inserted therein.

1 17. The hearing device of claim 1, wherein said sealing retainer is composed of  
2 conforming material.

1 18. The hearing device of claim 17, wherein said sealing retainer is composed of  
2 silicone or polyurethane foam.

1 19. The hearing device of claim 1, wherein said sealing retainer is configured to  
2 form an air-gap relative to said receiver section when fitted thereon.

1 20. The hearing device of claim 1, wherein said sealing retainer is removable from  
2 said hearing device and disposable for replacement thereof.

1 21. The hearing device of claim 1, wherein said sealing retainer further comprises  
2 medication material selected from a group including anti-bacterial and anti-microbial agents.

1 22. The hearing device of claim 1, including an assortment of different sizes and  
2 shapes of said sealing retainer for assembly of a selected sealing retainer of said assortment  
3 with said hearing device to optimally accommodate the dimensions of an individual ear canal.

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1           23.    The hearing device of claim 1, further comprising a strand to aid in either the  
2 placement or the removal of said hearing device into and from the ear canal.

1           24.    The hearing device of claim 1, wherein said oval cross-sectional perimeter of  
2 said lateral section has a long diameter to short diameter ratio of approximately 1.4.

1           25.    A battery assembly for connection to a core assembly of an extended wear canal  
2 hearing device, comprising:

3                   an outer enclosure adapted for substantially direct exposure to the environment of an  
4 ear canal into which said hearing device is to be inserted,

5                   said battery assembly adapted to be combined with a microphone section of said core  
6 assembly to form a lateral section of generally oval cross-sectional perimeter and generally  
7 cylindrical and elongated shape along its longitudinal axis, said lateral section being adapted  
8 for at least partial lateral suspension in the ear canal without occlusion thereof when said  
9 hearing device is inserted within the ear canal.

1           26.    The battery assembly of claim 25, wherein said battery assembly is  
2 rechargeable.

1           27.    The battery assembly of claim 25, wherein said lateral section is medially  
2 tapered.

1           28.    The battery assembly of claim 25, wherein said lateral section is dimensioned  
2           for said non-occlusion, with minimal or no contact with the walls of the ear canal when said  
3           hearing device is inserted therein, for minimal interference with hair and debris present within  
4           the ear canal.

1           29.    A single-use disposable hearing device adapted to be positioned entirely within  
2           an ear canal for extended wear therein, comprising:

3                a core assembly including:

4                   a lateral section containing a microphone and a battery assembly, said battery  
5           assembly being non-removably integrated within said lateral section, said lateral section  
6           having a generally oval cross-sectional perimeter and a generally cylindrical and elongated  
7           shape along the longitudinal axis of said lateral section corresponding to the longitudinal axis  
8           of the ear canal within which said hearing device is to be inserted, and

9                   a receiver section containing a receiver, said receiver section coupled to said  
10          lateral section and adapted to be medially positioned in the bony region of the ear canal when  
11          said hearing device is inserted within the ear canal; and

12                  a sealing retainer concentrically positioned over said receiver section and conforming  
13          to the walls of the ear canal at the bony region thereof, for seating said hearing device in the  
14          ear canal and providing an acoustic seal to inhibit feedback therein, and for at least partially  
15          laterally suspending said lateral section in the ear canal;

16                said lateral section being dimensioned to be substantially non-occluding with minimal

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17 or no contact with the walls of the ear canal when said hearing device is inserted therein.

1 / 30. The single-use disposable hearing device of claim 29, wherein said coupling  
2 of the receiver section to the lateral section is a flexible connection.

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1 / 31. The single-use disposable hearing device of claim 29, wherein said sealing  
2 retainer is composed of conforming material.

1 / 32. The single-use disposable hearing device of claim 29, wherein said sealing  
2 retainer has an air-gap therein.

1 / 33. The single-use disposable hearing device of claim 29, wherein said sealing  
2 retainer further comprises medication material selected from a group including anti-bacterial  
3 and anti-microbial agents.

1 / 34. The single-use disposable hearing device of claim 29, including an assortment  
2 of different sizes and shapes of said sealing retainer, for assembly of a sealing retainer of  
3 selected size and shape among said assortment with the core assembly, to optimally  
4 accommodate the dimensions of an individual ear canal.

1 / 35. The single-use disposable hearing device of claim 31, wherein said sealing

2     retainer comprises polyurethane foam or silicone.

1           36.     The single-use disposable hearing device of claim 29, said device being  
2     constructed and adapted to be worn in the ear canal for an extended period of time without  
3     need for daily insertion into and removal from the ear canal.

1           37.     The single-use disposable hearing device of claim 36, wherein said extended  
2     period of time is at least one week.

1           38.     A single-use disposable hearing device adapted to be positioned entirely within  
2     an ear canal for extended wear therein, comprising:

3             a core assembly with a lateral section of generally oval cross-section and generally  
4     elongated cylindrical shape for alignment substantially along the ear canal's longitudinal axis,  
5     and with a receiver section having a receiver coupled to said lateral section for medial  
6     positioning in the ear canal's bony region; said lateral section being dimensioned to avoid  
7     occluding the ear canal while at least partially laterally suspended therein, with a microphone  
8     and a battery assembly incorporated in said lateral section; and

9             a sealing retainer concentrically positioned over said receiver section, of a composition  
10     to conform to the ear canal's bony region wall to seat said hearing device and acoustically seal  
11     it in the ear canal to inhibit feedback therein.

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